UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,858	12/22/2003	Ravi Tangirala	1427/8	9098

25297 7590 01/22/2008

JENKINS, WILSON, TAYLOR & HUNT, P. A.
3100 TOWER BLVD., Suite 1200
DURHAM, NC 27707

EXAMINER	
RYMAN, DANIEL J	

ART UNIT	PAPER NUMBER
2616	

MAIL DATE	DELIVERY MODE
01/22/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/743,858	TANGIRALA ET AL.	
	Examiner	Art Unit	
	Daniel J. Ryman	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 November 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-16* is/are allowed.

6)☒ Claim(s) *17-34,36 and 37* is/are rejected.

7)☐ Claim(s) *35* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see Response, filed 30 November 2007, with respect to the rejection(s) of claim(s) 17-20, 26, 27, 29-34, and 36 under Hosein (USPN 6,570,847) in view of Applicant's Admitted Prior Art and the rejection of claims 28 and 37 under Hosein (USPN 6,570,847) in view of Applicant's Admitted Prior Art in further view of Lyles et al. (USPN 5,926,459) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Hosein (USPN 6,570,847) in view of Derby et al. (USPN 5,359,593) and Lyles et al. (USPN 5,926,459).

Claim Objections

2. Claim 29 is objected to because of the following informalities: in line 13, "at the token" should be "at the at least one token". Appropriate correction is required.

3. Claim 35 is objected to because of the following informalities: in line 14, "at the token" should be "at the at least one token". Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 21-25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. Claim 21 recites in lines 5-8: "automatically converting the desired bandwidth to a token bucket refresh rate" where "at least one token bucket associated with the switch [is refreshed] at the token bucket refresh rate". Claim 21 recites in lines 13-15: "computing a first token bucket refresh rate . . . and a second token bucket refresh rate". It is unclear whether the "token bucket refresh rate" set forth in lines 5-8 corresponds to one of or both of the "first token bucket refresh rate" and the "second token bucket refresh rate" set forth in lines 13-15.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 17-20, 26, 27, 29-34, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hosein (USPN 6,570,847), of record, in view of Derby et al. (USPN 5,359,593).

9. Regarding claims 17 and 29, Hosein discloses a method and system for allocating bandwidth to a queue in a switch, the method comprising the steps of and the system comprising means for: (a) receiving a desired bandwidth (desired traffic level) in a standard bandwidth denomination (messages per second) to be provided by a switch (col. 1, line 55-col. 2, line 1); (b) automatically converting the desired bandwidth to a token bucket refresh rate (col. 1, line 55-col. 2, line 1); (c) refreshing at least one token bucket associated with the switch at the token bucket refresh rate (col. 1, line 43-col. 2, line 1); and (d) scheduling at least one queue in the switch to be serviced based on available tokens in the token bucket (col. 1, line 43-col. 2, line 1).

Hosein does not expressly disclose receiving, from a user, a desired bandwidth in a standard bandwidth denomination to be provided by a switch since Hosein simply discloses that "the desired traffic level is selected as the number of messages per second that can be handled or received by the network traffic destination" (col. 1, lines 55-57). Derby discloses, in a system employing a token bucket, determining the refresh rate of the token bucket based on a maximum bit rate requested by a user source (col. 8, lines 50-53, where the leaky bucket parameter, γ, is computed based on R; col. 7, lines 34-35, where γ is the token generation rate used in a leaky bucket; and col. 7, lines 4-6, where R is the maximum bit rate, in bits per second, as requested by the user source) where it is implicit that this permits an end user to obtain a particular data rate. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to receive, from a user, a desired bandwidth in a standard bandwidth denomination to be provided by a switch in order to permit an end user to obtain a particular data rate.

10. Regarding claims 18 and 34, Hosein in view of Derby discloses that receiving a desired bandwidth in a standard bandwidth denomination to be provided by a switch includes receiving a desired bandwidth value from the user in a denomination comprising bits per second (Hosein: col. 1, line 43-col. 2, line 1 and Derby: col. 7, lines 4-6, where R is the maximum bit rate, in bits per second, as requested by the user source) where bits per second is a well-known unit for bandwidth, and wherein automatically converting the desired bandwidth to a token bucket refresh rate includes automatically converting the bandwidth in bits per second into the token bucket refresh rate (Hosein: col. 1, line 43-col. 2, line 1).

11. Regarding claims 19 and 30, Hosein in view of Derby discloses that receiving a desired bandwidth to be provided by a switch includes receiving input from a user regarding maximum

bandwidth values to be provided by a switch (Derby: col. 7, lines 4-6, where R is the maximum bit rate, in bits per second, as requested by the user source) and wherein automatically converting the desired bandwidth to a token bucket refresh rate includes converting the maximum bandwidth values to first and second token bucket refresh rates at which maximum token buckets associated with the switch will be refreshed (Hosein: col. 1, line 43-col. 2, line 1).

Hoesin in view of Derby does not expressly disclose that receiving a desired bandwidth to be provided by a switch includes receiving input from a user regarding a minimum bandwidth value to be provided by the switch; however, Examiner takes official notice that requesting a minimum bandwidth by a user is well known in the art because this ensures the user a minimal level of service. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have the user provide a minimum bandwidth value to be provided by the switch so that the user can ensure a minimal level of service.

12. Regarding claim 20, Hosein in view of Derby discloses that automatically converting the desired bandwidth to a token bucket refresh rate includes automatically writing the token bucket refresh rate into hardware associated with the queue (Derby: col. 8, lines 50-53, see also col. 14, lines 44-48) where any program or firmware used to calculate the refresh rate is implemented using hardware such that any result of this calculation would be written into hardware.

13. Regarding claims 26 and 36, Hosein in view of Derby discloses that scheduling at least one queue in the switch to be serviced based on available tokens in the token bucket includes scheduling the queue based on bandwidth state of the queue (Derby: col. 8, lines 50-53, where since the bandwidth is used to calculate the token refresh rate, the scheduling is done based on bandwidth state of the queue).

14. Regarding claim 27, Hosein in view of Derby discloses that scheduling the queue based on bandwidth state of the queue includes assigning a bandwidth state to the queue based on whether bandwidth consumed by the queue is less than a minimum bandwidth value, between minimum and maximum bandwidth values, or greater than the maximum bandwidth value (Derby: Fig. 6, where a queues bandwidth will be adjusted based on bandwidth consumed, such that its scheduling will also change).

15. Regarding claim 31, Hosein in view of Derby suggests that the user interface is adapted to receive the minimum and maximum bandwidth values from the user in a standard bandwidth denomination (Derby: col. 7, lines 4-6, where R is the maximum bit rate, in bits per second, as requested by the user source).

16. Regarding claim 32, Hosein in view of Derby discloses that the standard bandwidth denomination comprises bits per second (Derby: col. 7, lines 4-6, where R is the maximum bit rate, in bits per second, as requested by the user source).

17. Regarding claim 33, Hosein in view of Derby discloses that the bandwidth converter is adapted to convert the bandwidth values from the standard bandwidth denomination to token bucket refresh rates (Hosein: col. 1, line 43-col. 2, line 1).

18. Claims 28 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hosein (USPN 6,570,847), of record, in view of Derby et al. (USPN 5,359,593) as applied to claims 26 and 36 above, and further in view of Lyles et al. (USPN 5,926,459), of record.

19. Regarding claims 28 and 37, Hosein in view of Derby discloses that scheduling the queue based on bandwidth state of the queue includes scheduling the queue based on bandwidth state and relative priority of the queue with respect to other queues in the switch (Derby: col. 5, lines

21-30, see also col. 1, lines 51-60). Hosein in view of Derby does not expressly disclose that scheduling the queue based on bandwidth state of the queue includes scheduling the queue based on relative time that the queue has been serviced as compared to the other queues in the switch. Lyles teaches, in a rate shaping system, that it is known to raise the priority of traffic flows that have not been served in a certain time (col. 5, line 61-col. 6, line 9) where it is implicit that this is done in order to ensure that a low priority flow is not substantially delayed at the expense of higher priority flows. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to schedule the queue based on relative time that the queue has been serviced as compared to the other queues in the switch in order to ensure that one queue is not substantially delayed as compared to the other queues in the switch.

Allowable Subject Matter

20. Claims 1-16 and 35 are allowed. The prior art does not disclose or fairly suggest converting the bandwidth into a base bandwidth value and a residual bandwidth value and then using these values to compute two separate token refresh rates.

21. Claims 21-25 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action. The prior art does not disclose or fairly suggest converting the bandwidth into a base bandwidth value and a residual bandwidth value and then using these values to compute two separate token refresh rates.

Conclusion

22. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Johri (USPN 5,625,622) see entire document which pertains to a leaky bucket system that permits various token refresh sizes. Guibert (USPN 5,815,491) see entire document which

pertains to using multiple parallel replenishing rates implemented in multiple parallel token buckets to regulate a single data flow.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Ryman whose telephone number is (571)272-3152. The examiner can normally be reached on Mon.-Fri. 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571)272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Daniel J. Ryman
Examiner
Art Unit 2616

Daniel Ryman